

| | | | | |
|--|--|----------------------------|---|-------------------|
| LOGGED BY M. McKee | BEGIN DATE 1-10-08 | COMPLETION DATE 1-11-08 | BOREHOLE LOCATION (Lat/Long or North/East and Datum) N2120910.322 / E5997352.487 (NAD83) | HOLE ID DNB-R2 |
| DRILLING CONTRACTOR Gregg Drilling and Testing, Inc. | BOREHOLE LOCATION (Offset, Station, Line) Offset 105ft R Sta 51+74 NB Alignment | | SURFACE ELEVATION 11.666 ft (NAVD88) | |
| DRILLING METHOD Mud Rotary | DRILL RIG Fraste Multi-drill (track) | | BOREHOLE DIAMETER 5 in. | |
| SAMPLER TYPE(S) AND SIZE(S) (ID) MC (2.4"), SPT (1.4"), Shelby (2.87"), Pitcher (2.87") | SPT HAMMER TYPE Automatic, 140 lbs., 30-inch drop | | HAMMER EFFICIENCY, ERI 72.9% | |
| BOREHOLE BACKFILL AND COMPLETION Neat Cement Grout backfill | GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS | | TOTAL DEPTH OF BORING 106 ft | |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | Description | Sample Location | Sample Number | Blows per 6 In | Blows per Foot | Recovery (%) | RQD (%) | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|-----------------|---------------|------------------|----------------|--------------|---------|----------------------|-----------------------|----------------------|-----------------|--------------|--|
| 0 | 0 | | 2" ASPHALT CONCRETE. | | | | | | | | | | | | |
| | 1 | | CLAYEY SAND (SC), gray and red, moist, with conglomerate, sandstone and brick fragments, clasts of SANDY CLAY. [FILL] | | | | | | | | | | | | |
| 9.67 | 2 | | SILTY SAND/CLAYEY SAND (SM-SC), dark gray, moist, fine. | | S1 | 3 | 14 | 100 | | | | | | | |
| | 3 | | SANDY lean CLAY (CL), soft, olive gray and dark gray, SAND is fine, with brick fragments, fine GRAVEL. | | | 5 | | | | | | | | | |
| 7.67 | 4 | | CLAYEY SAND (SC), very loose, dark gray, moist, fine. | | S2 | 2 | 3 | 6 | | | | | | | |
| | 5 | | Grades to brown SANDY CLAY ~4'. | | | 1 | | | | | | | | | |
| | 6 | | | | | 2 | | | | | | | | | |
| 5.67 | 7 | | Fat CLAY with SAND (CH), soft, black and olive, very moist. [BAY MUD] | | | | | | | | | | | | |
| | 8 | | Pocket of clean dark gray SAND at ~7.5' (few inches). | | S3 | 1 | 5 | 56 | | | | | | | |
| 3.67 | 9 | | CLAYEY SAND (SC), very loose, dark gray, moist to very moist, fine. [SANDY BAY MUD] | | S4 | 0 | 1 | 100 | | | | | | | |
| | 10 | | | | | 0 | | | | | | | | | |
| 1.67 | 11 | | | | | 1 | | | | | | | | | |
| -0.33 | 12 | | CLAYEY SAND (SC), dark gray, fine, slight organic/earthy odor detected. [MARINE SAND] | | U5 | | ~RW | 70 | | | | | | | Gray clay with fine to very fine sand noted in cuttings at 11' |
| | 13 | | | | | | | | | | | | | | |
| -2.33 | 14 | | | | | | | | | | | | | | |
| | 15 | | | | | | | | | | | | | | |
| -4.33 | 16 | | Poorly graded SAND (SP), medium dense, gray, very moist, trace SILT, with shell fragments. | | | | | | | | | | | | |
| | 17 | | | | S6 | 14 | 34 | 78 | | | | | | | |
| -6.33 | 18 | | | | | 17 | | | | | | | | | |
| | 19 | | 20.0', lense of very dark gray fat CLAY. | | S7 | 5 | 4 | 100 | | | | | | | |
| -8.33 | 20 | | Fat CLAY with SAND (CH), soft, gray, very moist, SAND is fine. [BAY MUD] | | U8 | RW/1.5, 1000 psi | | | | | | | | | ~1" Bay Mud noted at tip of SPT ~20' |
| | 21 | | | | | | | | | | | | | | |
| -10.33 | 22 | | Poorly graded SAND with CLAY (SP-SC), loose, gray brown, very moist to wet, fine, frequent shell fragments. [MARINE SAND] | | | | | | | | | | | | |
| | 23 | | | | S9 | 2 | 5 | 83 | | | | | | | |
| -12.33 | 24 | | Poorly graded SAND (SP), loose, grayish brown, fine, occasional shell fragments. | | | 2 | | | | | | | | | |
| | 25 | | | | | 3 | | | | | | | | | |

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Department of Transportation
Division of Engineering Services
Geotechnical Services

REPORT TITLE
BORING RECORD

DIST. 4 COUNTY S.F. ROUTE 101 POSTMILE 8.3/9.4

HOLE ID
DNB-R2

EA
163701

PROJECT OR BRIDGE NAME
Doyle Drive Replacement Project

BRIDGE NUMBER 34-164R PREPARED BY T. Carroll

DATE
11-3-08

SHEET
1 of 4

Figure

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | Description | Sample Location | Sample Number | Blows per 6 in | Blows per Foot | Recovery (%) | RQD (%) | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|-----------------|---------------|-------------------|----------------|--------------|---------|----------------------|-----------------------|----------------------|-----------------|--------------|---------|
| -14.33 | 25 | | Poorly graded SAND (SP), dark yellowish brown, wet, fine. [COLMA SAND] | | | | | | | | | | | | |
| | 26 | | | | | | | | | | | | | | |
| | 27 | | | | | | | | | | | | | | |
| -16.33 | 28 | | Grades dense to very dense. | | S10 | 22 36 42 | 78 | 100 | | | | | | | |
| | 29 | | | | S11 | 16 23 46 | 69 | 100 | | | | | | | |
| -18.33 | 30 | | Grades with trace CLAY. | | | | | | | | | | | | |
| | 31 | | | | | | | | | | | | | | |
| -20.33 | 32 | | | | S12 | 35 32 32 | 64 | 94 | | | | | | | |
| | 33 | | | | | | | | | | | | | | |
| -22.33 | 34 | | 34.3', grades brown to yellowish brown, with 1/8" iron-oxide stained SAND seams. | | S13 | 13 24 36 | 60 | 100 | | | | | | | |
| | 35 | | | | | | | | | | | | | | |
| -24.33 | 36 | | | | | | | | | | | | | | |
| | 37 | | | | S14 | 14 33 42 | 77 | 100 | | | | | | | |
| -26.33 | 38 | | | | | | | | | | | | | | |
| | 39 | | Some iron-oxide staining at ~39.4'. 39.4' - 40.0', grades with trace CLAY. | | S15 | 12 22 39 | 61 | 100 | | | | | | | |
| -28.33 | 40 | | | | | | | | | | | | | | |
| | 41 | | | | | | | | | | | | | | |
| -30.33 | 42 | | | | S16 | 34 44 50/5" | 94/11" | 100 | | | | | | | |
| | 43 | | Very dense. | | | | | | | | | | | | |
| -32.33 | 44 | | Iron-oxide staining at ~43.5' - 44.0'. | | S17 | 11 23 54 | 77 | 100 | | | | | | | |
| | 45 | | | | | | | | | | | | | | |
| -34.33 | 46 | | | | | | | | | | | | | | |
| | 47 | | | | S18 | 33 49 50 | 99 | 83 | | | | | | | |
| -36.33 | 48 | | Iron-oxide stained seams noted ~48.5'. | | | | | | | | | | | | |
| | 49 | | CLAYEY SAND (SC), dense, dark brown to dark yellowish brown, moist, some 1/8" to 1/4" iron-oxide stained mottling. | | S19 | 14 18 27 | 45 | 100 | | | | | | | |
| -38.33 | 50 | | | | | | | | | | | | | | |
| | 51 | | | | | | | | | | | | | | |
| -40.33 | 52 | | | | S20 | 9 14 18 | 32 | 100 | | | | | | | |
| | 53 | | | | | | | | | | | | | | |
| -42.33 | 54 | | | | | | | | | | | | | | |
| | 55 | | | | | | | | | | | | | | |

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Department of Transportation
Division of Engineering Services
Geotechnical Services

REPORT TITLE
BORING RECORD

DIST.
4

COUNTY
S.F.

ROUTE
101

POSTMILE
8.3/9.4

HOLE ID
DNB-R2

EA
163701

PROJECT OR BRIDGE NAME
Doyle Drive Replacement Project

BRIDGE NUMBER
34-164R

PREPARED BY
T. Carroll

DATE
11-3-08

SHEET
2 of 4

Figure

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | Description | Sample Location | Sample Number | Blows per 6 In | Blows per Foot | Recovery (%) | RQD (%) | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|-----------------|---------------|-------------------|----------------|--------------|---------|----------------------|-----------------------|----------------------|-----------------|--------------|--|
| 55 | 56 | | CLAYEY SAND (SC), dense, dark brown to dark yellowish brown, moist, some 1/8" to 1/4" iron-oxide stained mottling. | | | | | | | | | | | | Contact not observed |
| -44.33 | 57 | | SAND with CLAY (SP-SC), very dense, grayish brown to brown, moist, fine to very fine. | | | | | | | | | | | | |
| -46.33 | 58 | | SANDY CLAY (SC), dark gray to olive, moist. | | S21 | 25 31 37 | 68 | 100 | | | | | | | Drilling slows at 59.5' |
| 59 | 60 | | | | | | | | | | | | | | |
| -48.33 | 61 | | Poorly graded SAND with CLAY (SP-SC), dense, dark greenish gray, moist, fine, with decayed root, with olive gray mottling. | | S22 | 18 20 27 | 47 | 100 | | | | | | | Drilling faster at 61-62'; sandy - per driller |
| -50.33 | 62 | | | | | | | | | | | | | | |
| 63 | 64 | | Poorly graded SAND (SP), very dense, dark gray, wet, fine. | | S23 | 26 41 50/5" | 91/ 11" | 100 | | | | | | | |
| -52.33 | 65 | | | | | | | | | | | | | | |
| 66 | 67 | | Lean CLAY with SAND (CL), hard, greenish gray, moist, with iron oxide nodules, with calcite veins, sand is fine with black specks. [OLD BAY CLAY] | | S24 | 22 13 20 | 33 | 100 | | | | | | | |
| -54.33 | 68 | | | | | | | | | | | | | | |
| -56.33 | 69 | | Fat CLAY (CH), hard, greenish gray, moist. | | U25 | | 0 psi | 67 | | | | PP = 2.1, 1.9 | | | |
| 70 | 71 | | | | | | | | | | | | | | |
| -58.33 | 72 | | | | | | | | | | | PP = >2.25 | | | |
| 73 | 74 | | | | | | | | | | | | | | |
| -60.33 | 75 | | | | | | | | | | | | | | |
| 76 | 77 | | | | | | | | | | | | | | |
| -62.33 | 78 | | | | | | | | | | | | | | |
| 79 | 80 | | | | | | | | | | | | | | |
| -64.33 | 81 | | | | | | | | | | | | | | |
| 82 | 83 | | | | | | | | | | | | | | |
| -66.33 | 84 | | | | | | | | | | | | | | |
| 85 | 86 | | | | | | | | | | | | | | |
| -68.33 | 87 | | | | | | | | | | | | | | |
| 88 | 89 | | | | | | | | | | | | | | |
| -70.33 | 90 | | | | | | | | | | | | | | |
| 91 | 92 | | | | | | | | | | | | | | |
| -72.33 | 93 | | | | | | | | | | | | | | |
| 94 | 95 | | | | | | | | | | | | | | |
| -74.33 | 96 | | | | | | | | | | | | | | |
| 97 | 98 | | | | | | | | | | | | | | |
| -76.33 | 99 | | | | | | | | | | | | | | |
| 100 | 101 | | | | | | | | | | | | | | |

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| HOLE ID | DNB-R2 |
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| DIST. | 4 |
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COUNTY
S.F.

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| ROUT 101 |
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| POSTMILE 8.3/9.4 |
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| EA 163701 |
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| PROJECT OR BRIDGE NAME | | |
|------------------------|--|--|

PROJECT OR BRIDGE NAME
Doyle Drive Replacement Project

BRIDGE NUMBER
34-164R

PREPARED BY
T. Carroll

| | |
|------|---------|
| DATE | 11-3-08 |
|------|---------|

SHEET
3 of 4

Figure

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | Description | Sample Location | Sample Number | Blows per 6 In | Blows per Foot | Recovery (%) | RQD (%) | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|-----------------|---------------|----------------|----------------|--------------|---------|----------------------|-----------------------|----------------------|-----------------|--------------|--|
| 85 | 85 | | Fat CLAY (CH), hard, greenish gray, moist. | | | | | | | | | | | | |
| -74.33 | 86 | | | | | | | | | | | | | | |
| | 87 | | | | | | | | | | | | | | |
| -76.33 | 88 | | | | | | | | | | | | | | |
| | 89 | | Grades to sandy fat CLAY, with trace of white shells. | | | | | | | | | | | | |
| -78.33 | 90 | | | | | | | | | | | | | | |
| | 91 | | | | | | | | | | | | | | |
| -80.33 | 92 | | | S27 | | 7 | 20 | 72 | | | | | | | |
| | 93 | | | | | 9 | | | | | | | | | |
| -82.33 | 94 | | 93.5', trace fine GRAVEL. | | | 11 | | | | | | | | | |
| | 95 | | | | | | | | | | | | | | |
| -84.33 | 96 | | | | | | | | | | | | | | |
| | 97 | | | | | | | | | | | | | | |
| -86.33 | 98 | | | | | | | | | | | | | | |
| | 99 | | | | | | | | | | | | | | |
| -88.33 | 100 | | Poorly graded SAND (SP), olive brown to reddish brown, moist, fine, strongly cemented. [DEEP MARINE SAND] | U28 | | | | 100 | | | | | | | Chatter at 99.5'; Full samples recovered but 19 dropped; tube dented |
| | 101 | | | | | | | | | | | | | | |
| -90.33 | 102 | | | | | | | | | | | | | | |
| | 103 | | | | | | | | | | | | | | |
| -92.33 | 104 | | | | | | | | | | | | | | |
| | 105 | | | | | | | | | | | | | | |
| -94.33 | 106 | | SANDY lean CLAY (CL), very stiff to hard, yellowish brown, sand is fine, with iron-oxide stained nodules. [OLD BAY CLAY] | S29 | | 24 | 48 | 100 | | | | PP = >2.25 | | | |
| | 107 | | Borehole terminated at a depth of 106 feet on 1/11/2008. | | | 20 | | | | | | | | | |
| | 108 | | See Boring Record Legend for soil classification chart and key to test data and sampler type. | | | 28 | | | | | | | | | |
| -96.33 | 109 | | | | | | | | | | | | | | |
| | 110 | | | | | | | | | | | | | | |
| -98.33 | 111 | | | | | | | | | | | | | | |
| | 112 | | | | | | | | | | | | | | |
| -100.33 | 113 | | | | | | | | | | | | | | |
| | 114 | | | | | | | | | | | | | | |
| -102.33 | 115 | | | | | | | | | | | | | | |



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SHEET
4 of 4

Figure